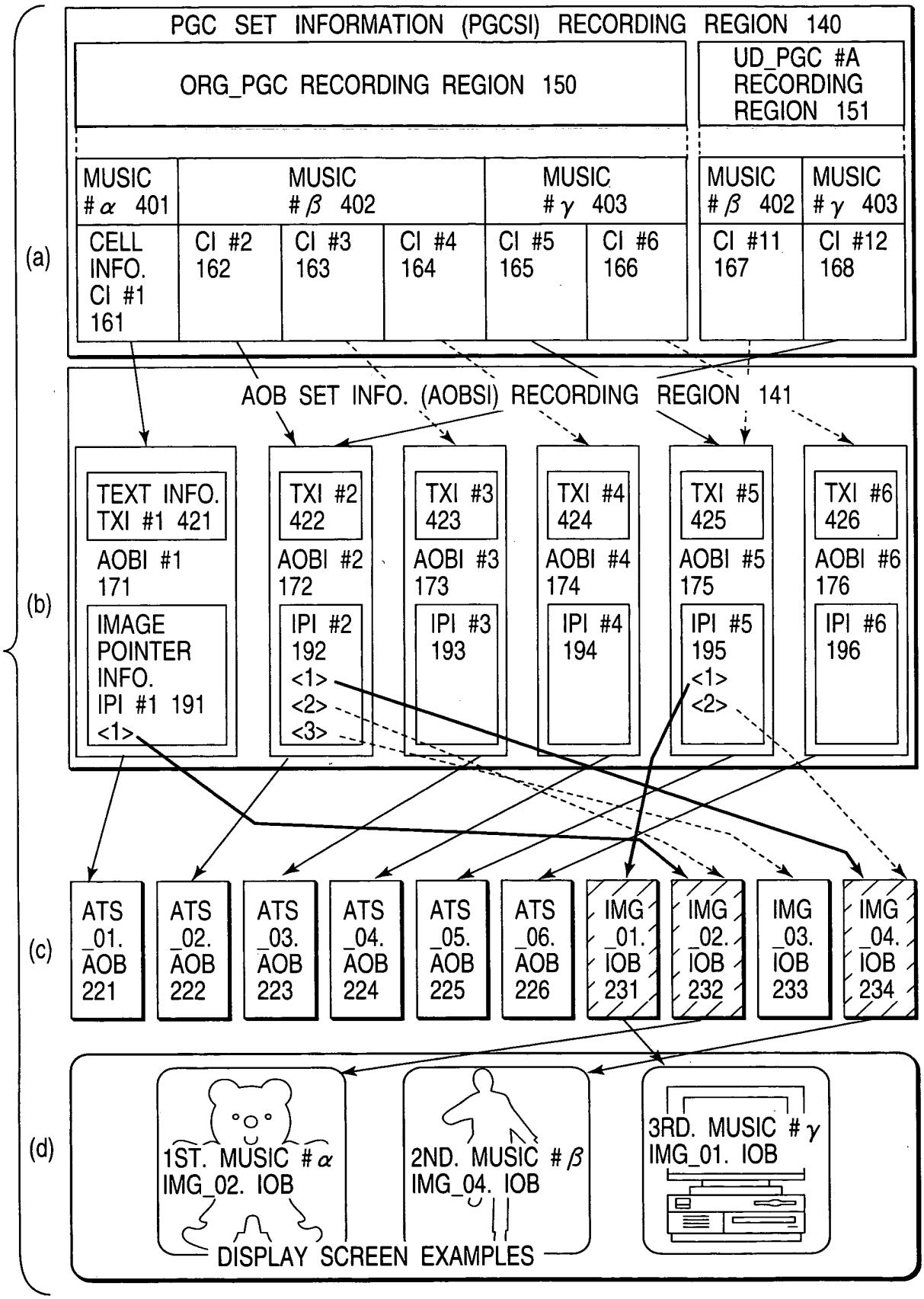
PGC SET INFORMATION (PGCSI) RECORDING REGION 140
ORG_PGC RECORDING REGION 150
UD_PGC #A RECORDING REGION 151
MUSIC # α 401
MUSIC # β 402
MUSIC # γ 403
MUSIC # β 402
MUSIC # γ 403
CELL INFO. CI #1 161
CI #2 162
CI #3 163
CI #4 164
CI #5 165
CI #6 166
CI #11 167
CI #12 168
(a)
AOB SET INFO. (AOBSI) RECORDING REGION 141
TEXT INFO. TXI #1 421
AOBI #1 171
IMAGE POINTER INFO. IPI #1 191
<1>
TXI #2 422
AOBI #2 172
IPI #2 192
<1>
<2>
<3>
TXI #3 423
AOBI #3 173
IPI #3 193
TXI #4 424
AOBI #4 174
IPI #4 194
TXI #5 425
AOBI #5 175
IPI #5 195
<1>
<2>
TXI #6 426
AOBI #6 176
IPI #6 196
(b)
ATS _01. AOB 221
ATS _02. AOB 222
ATS _03. AOB 223
ATS _04. AOB 224
ATS _05. AOB 225
ATS _06. AOB 226
IMG _01. IOB 231
IMG _02. IOB 232
IMG _03. IOB 233
IMG _04. IOB 234
(c)
1ST. MUSIC # α IMG_02. IOB
2ND. MUSIC # β IMG_04. IOB
3RD. MUSIC # γ IMG_01. IOB
DISPLAY SCREEN EXAMPLES
(d)

FIG. 1

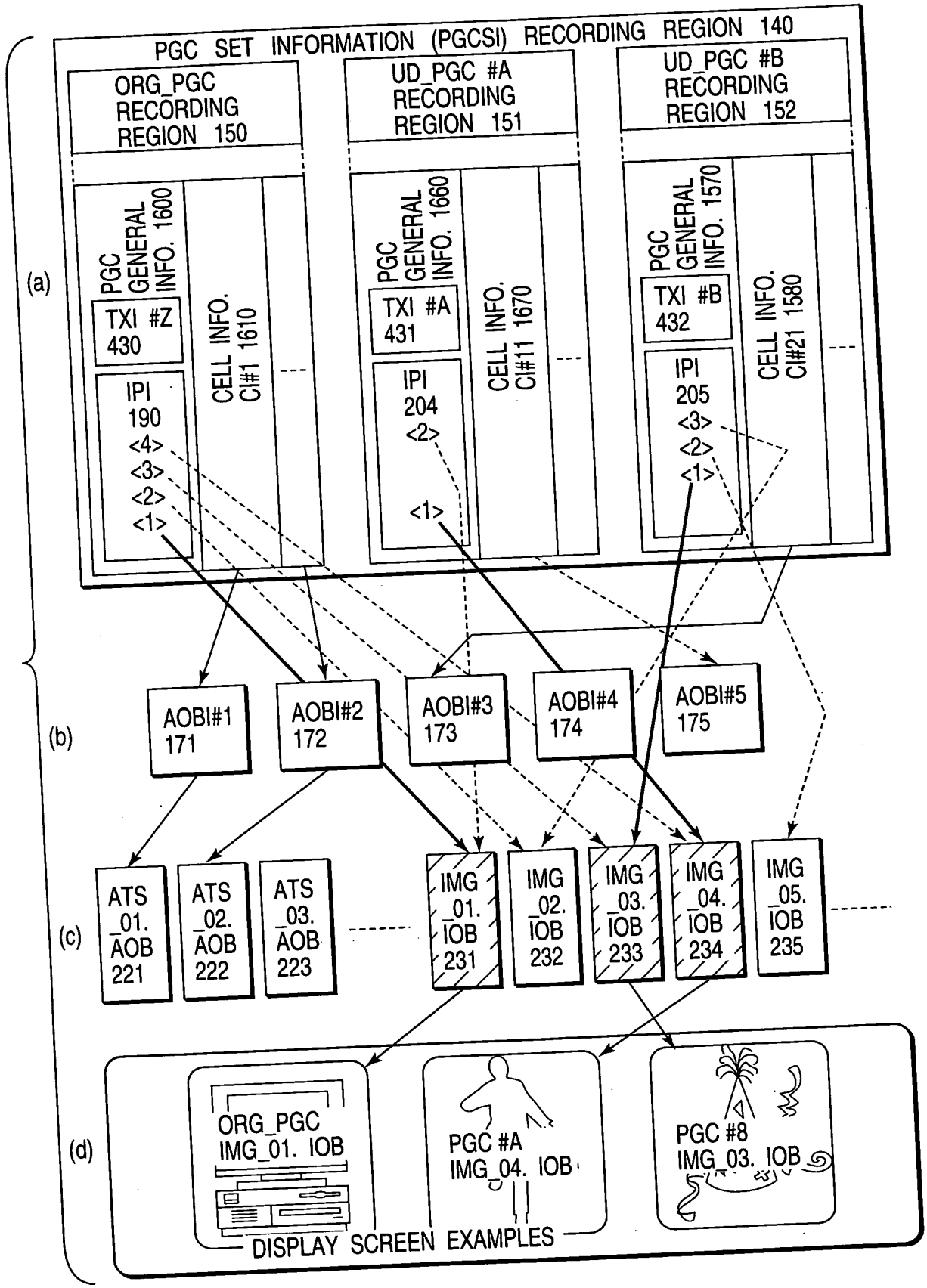
PGC SET INFORMATION (PGCSI) RECORDING REGION 140
ORG_PGC RECORDING REGION 150
UD_PGC #A RECORDING REGION 151
UD_PGC #B RECORDING REGION 152
PGC GENERAL INFO. 1600
TXI #Z 430
IPI 190 <4> <3> <2> <1>
CELL INFO. CI#1 1610
PGC GENERAL INFO. 1660
TXI #A 431
IPI 204 <2> <1>
CELL INFO. CI#11 1670
PGC GENERAL INFO. 1570
TXI #B 432
IPI 205 <3> <2> <1>
CELL INFO. CI#21 1580
(a)
(b)
AOBI#1 171
AOBI#2 172
AOBI#3 173
AOBI#4 174
AOBI#5 175
(c)
ATS_01._AOB 221
ATS_02._AOB 222
ATS_03._AOB 223
IMG_01._IOB 231
IMG_02._IOB 232
IMG_03._IOB 233
IMG_04._IOB 234
IMG_05._IOB 235
(d)
ORG_PGC IMG_01. IOB
PGC #A IMG_04. IOB
PGC #8 IMG_03. IOB
DISPLAY SCREEN EXAMPLES

FIG. 2

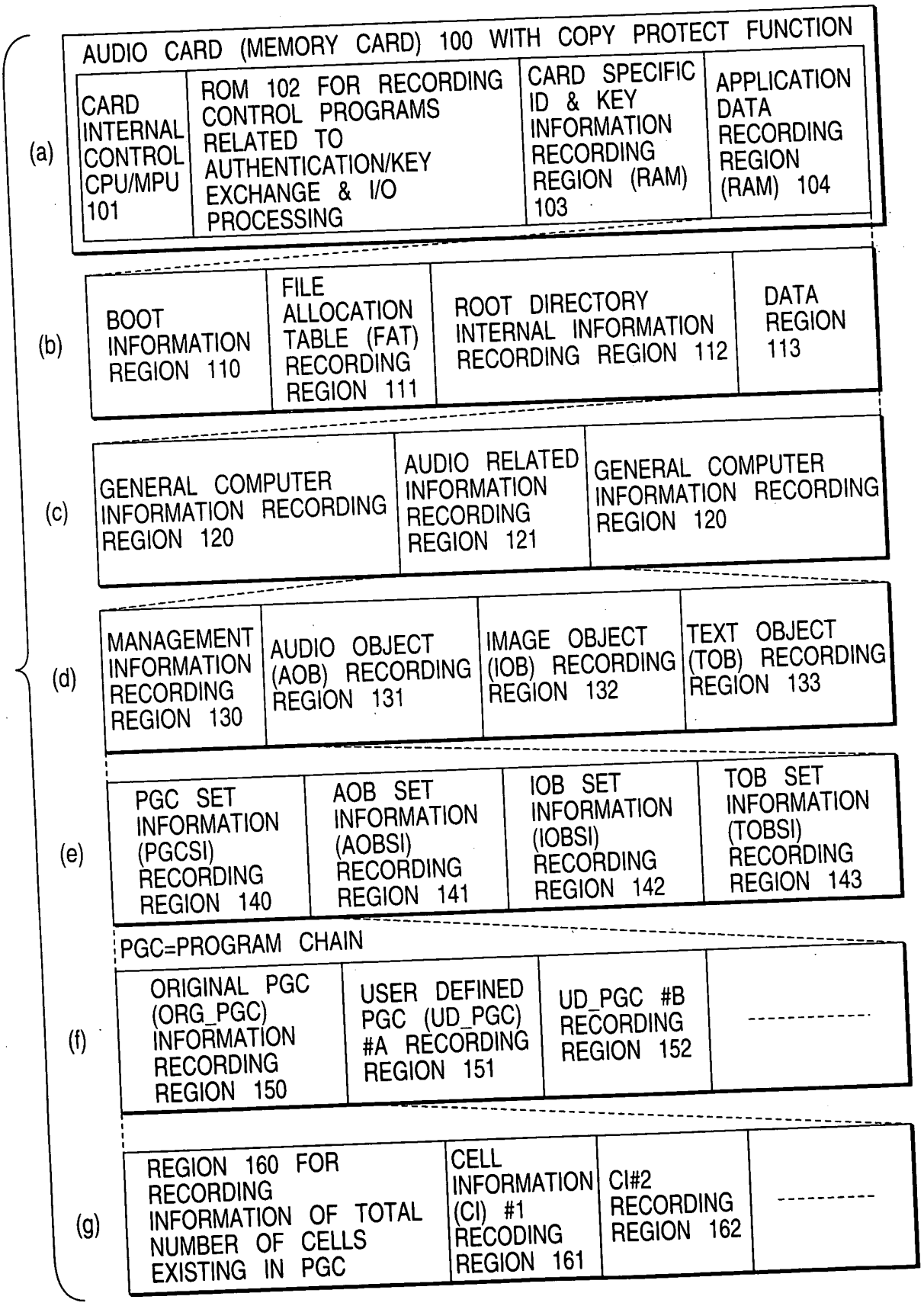
AUDIO CARD (MEMORY CARD) 100 WITH COPY PROTECT FUNCTION
(a)
CARD INTERNAL CONTROL CPU/MPU 101
ROM 102 FOR RECORDING CONTROL PROGRAMS RELATED TO AUTHENTICATION/KEY EXCHANGE & I/O PROCESSING
CARD SPECIFIC ID & KEY INFORMATION RECORDING REGION (RAM) 103
APPLICATION DATA RECORDING REGION (RAM) 104
(b)
BOOT INFORMATION REGION 110
FILE ALLOCATION TABLE (FAT) RECORDING REGION 111
ROOT DIRECTORY INTERNAL INFORMATION RECORDING REGION 112
DATA REGION 113
(c)
GENERAL COMPUTER INFORMATION RECORDING REGION 120
AUDIO RELATED INFORMATION RECORDING REGION 121
GENERAL COMPUTER INFORMATION RECORDING REGION 120
(d)
MANAGEMENT INFORMATION RECORDING REGION 130
AUDIO OBJECT (AOB) RECORDING REGION 131
IMAGE OBJECT (IOB) RECORDING REGION 132
TEXT OBJECT (TOB) RECORDING REGION 133
(e)
PGC SET INFORMATION (PGCSI) RECORDING REGION 140
AOB SET INFORMATION (AOBSI) RECORDING REGION 141
IOB SET INFORMATION (IOBSI) RECORDING REGION 142
TOB SET INFORMATION (TOBSI) RECORDING REGION 143
PGC=PROGRAM CHAIN
(f)
ORIGINAL PGC (ORG_PGC) INFORMATION RECORDING REGION 150
USER DEFINED PGC (UD_PGC) #A RECORDING REGION 151
UD_PGC #B RECORDING REGION 152
---
(g)
REGION 160 FOR RECORDING INFORMATION OF TOTAL NUMBER OF CELLS EXISTING IN PGC
CELL INFORMATION (CI) #1 RECODING REGION 161
CI#2 RECORDING REGION 162
---

FIG. 3

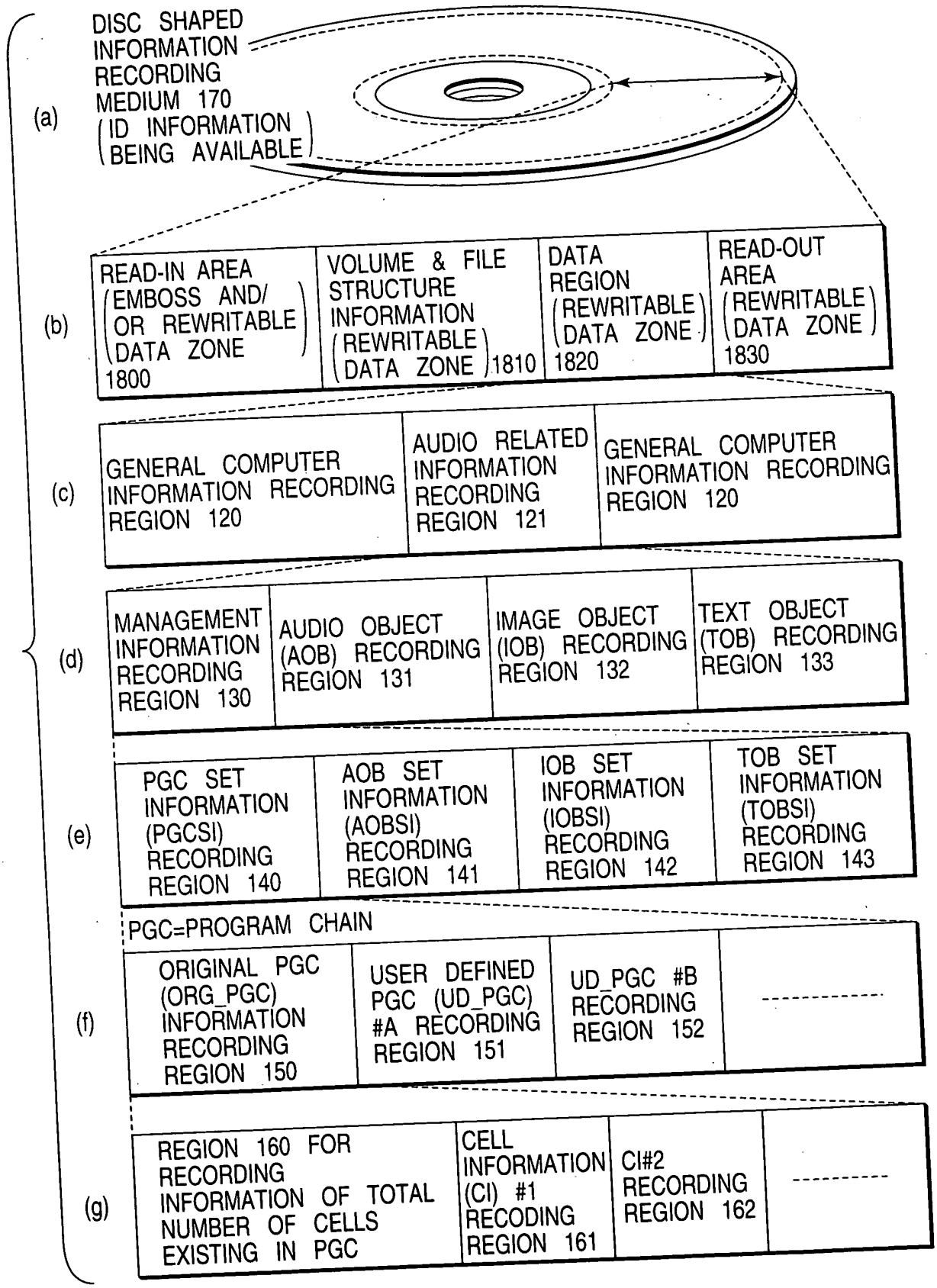
(a)
DISC SHAPED INFORMATION RECORDING MEDIUM 170 (ID INFORMATION BEING AVAILABLE)
(b)
READ-IN AREA (EMBOSS AND/OR REWRITABLE DATA ZONE 1800
VOLUME & FILE STRUCTURE INFORMATION (REWRITABLE DATA ZONE 1810
DATA REGION (REWRITABLE DATA ZONE 1820
READ-OUT AREA (REWRITABLE DATA ZONE 1830
(c)
GENERAL COMPUTER INFORMATION RECORDING REGION 120
AUDIO RELATED INFORMATION RECORDING REGION 121
GENERAL COMPUTER INFORMATION RECORDING REGION 120
(d)
MANAGEMENT INFORMATION RECORDING REGION 130
AUDIO OBJECT (AOB) RECORDING REGION 131
IMAGE OBJECT (IOB) RECORDING REGION 132
TEXT OBJECT (TOB) RECORDING REGION 133
(e)
PGC SET INFORMATION (PGCSI) RECORDING REGION 140
AOB SET INFORMATION (AOBSI) RECORDING REGION 141
IOB SET INFORMATION (IOBSI) RECORDING REGION 142
TOB SET INFORMATION (TOBSI) RECORDING REGION 143
PGC=PROGRAM CHAIN
(f)
ORIGINAL PGC (ORG_PGC) INFORMATION RECORDING REGION 150
USER DEFINED PGC (UD_PGC) #A RECORDING REGION 151
UD_PGC #B RECORDING REGION 152
(g)
REGION 160 FOR RECORDING INFORMATION OF TOTAL NUMBER OF CELLS EXISTING IN PGC
CELL INFORMATION (CI) #1 RECODING REGION 161
CI#2 RECORDING REGION 162

FIG. 4

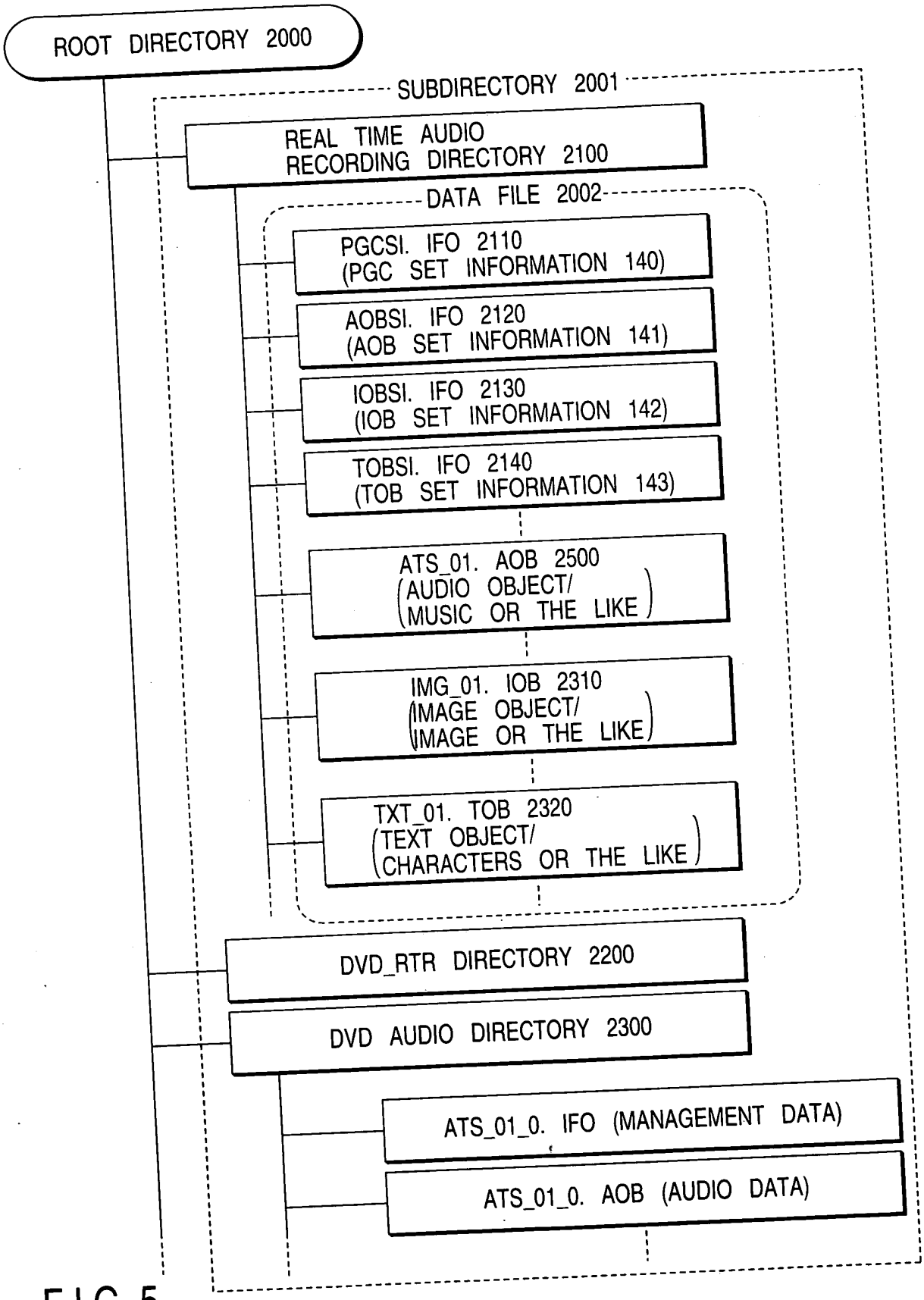
ROOT DIRECTORY 2000
SUBDIRECTORY 2001
REAL TIME AUDIO RECORDING DIRECTORY 2100
DATA FILE 2002
PGCSI. IFO 2110 (PGC SET INFORMATION 140)
AOBSI. IFO 2120 (AOB SET INFORMATION 141)
IOBSI. IFO 2130 (IOB SET INFORMATION 142)
TOBSI. IFO 2140 (TOB SET INFORMATION 143)
ATS_01. AOB 2500 (AUDIO OBJECT/ MUSIC OR THE LIKE)
IMG_01. IOB 2310 (IMAGE OBJECT/ IMAGE OR THE LIKE)
TXT_01. TOB 2320 (TEXT OBJECT/ CHARACTERS OR THE LIKE)
DVD_RTR DIRECTORY 2200
DVD AUDIO DIRECTORY 2300
ATS_01_0. IFO (MANAGEMENT DATA)
ATS_01_0. AOB (AUDIO DATA)

FIG. 5

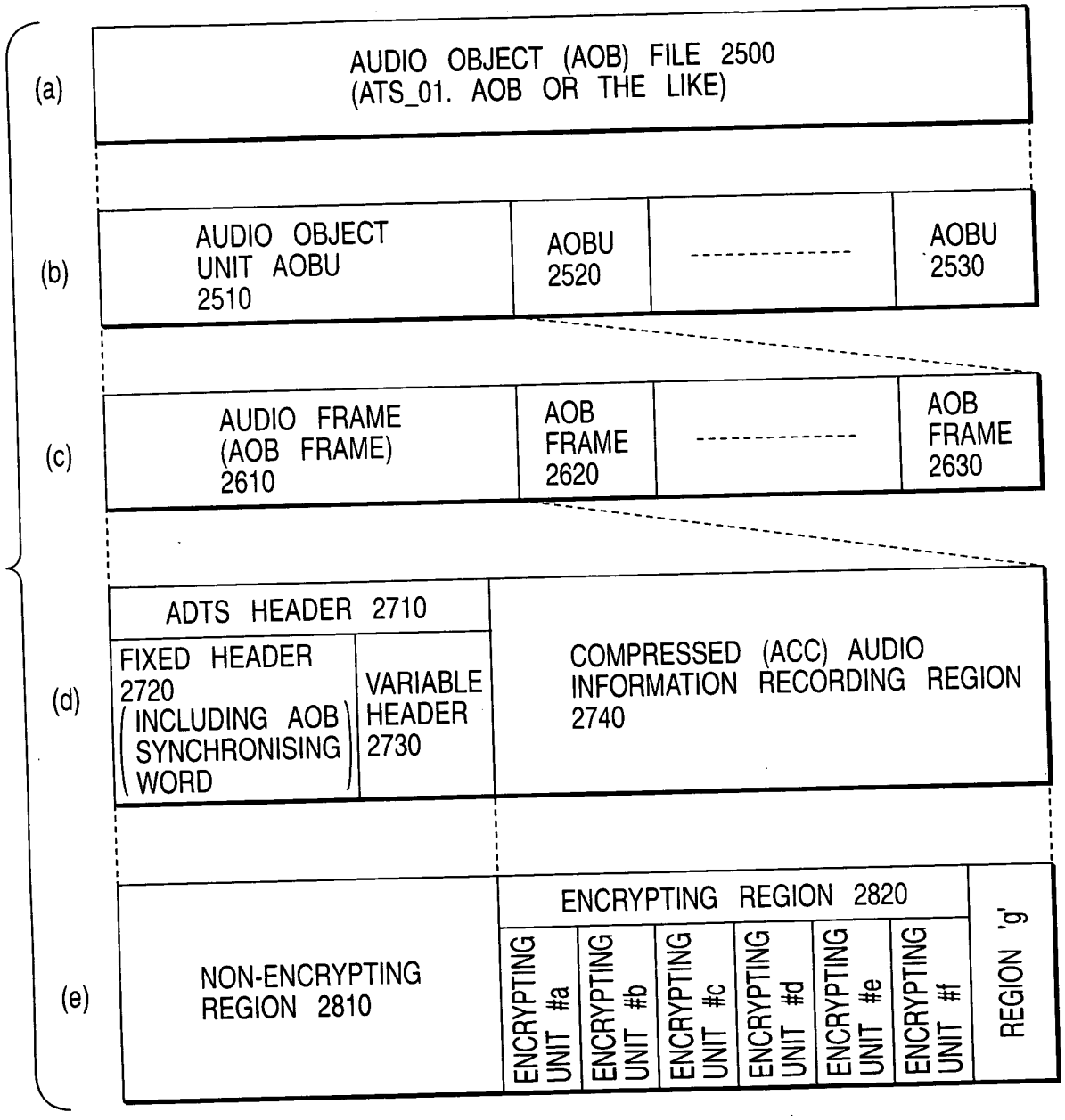
(a)
AUDIO OBJECT (AOB) FILE 2500
(ATS_01. AOB OR THE LIKE)
(b)
AUDIO OBJECT UNIT AOBU 2510
AOBU 2520
AOBU 2530
(c)
AUDIO FRAME (AOB FRAME) 2610
AOB FRAME 2620
AOB FRAME 2630
(d)
ADTS HEADER 2710
FIXED HEADER 2720 (INCLUDING AOB SYNCHRONISING WORD)
VARIABLE HEADER 2730
COMPRESSED (ACC) AUDIO INFORMATION RECORDING REGION 2740
(e)
NON-ENCRYPTING REGION 2810
ENCRYPTING REGION 2820
ENCRYPTING UNIT #a
ENCRYPTING UNIT #b
ENCRYPTING UNIT #c
ENCRYPTING UNIT #d
ENCRYPTING UNIT #e
ENCRYPTING UNIT #f
REGION 'g'

FIG. 6

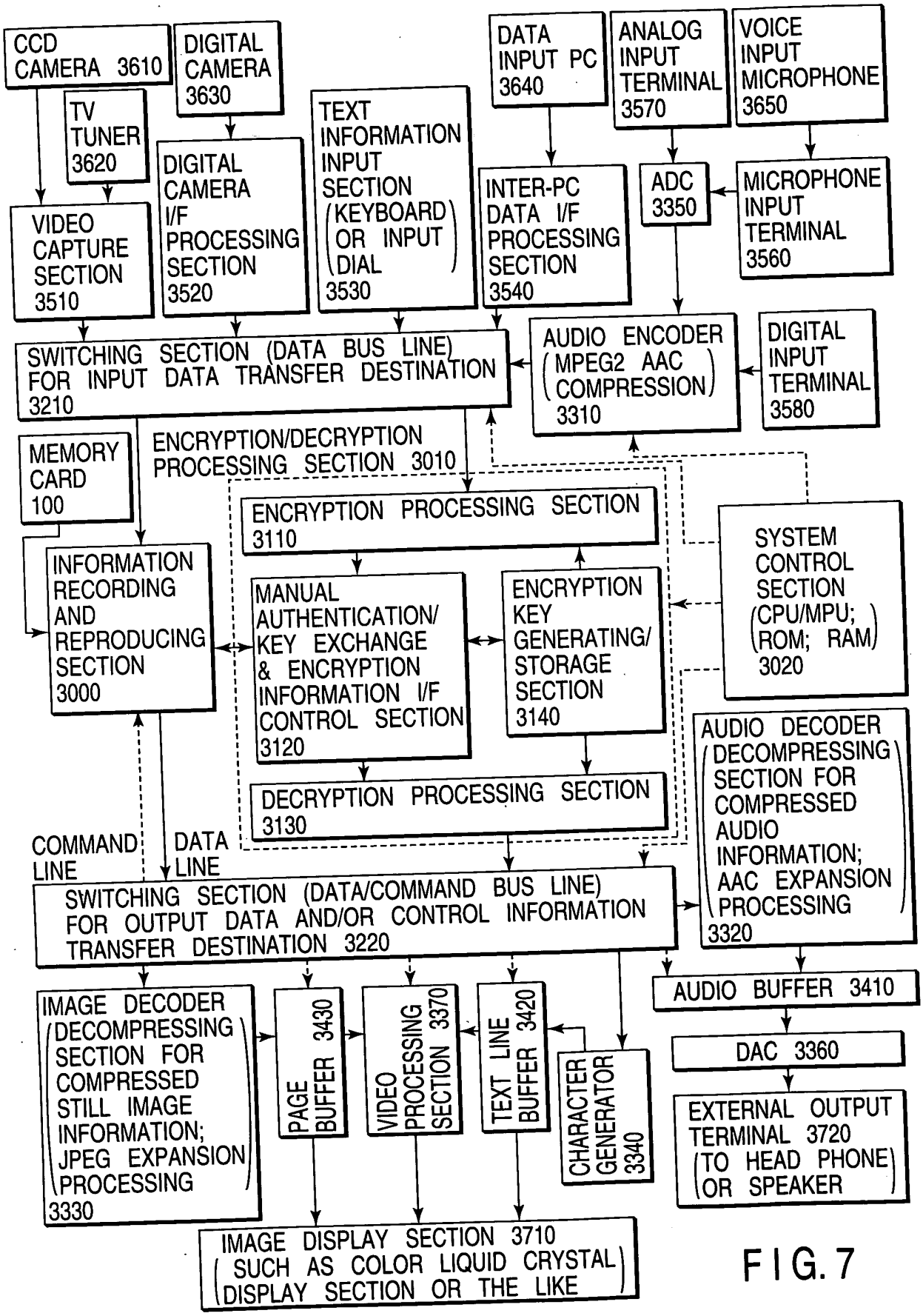
CCD CAMERA 3610
DIGITAL CAMERA 3630
TV TUNER 3620
DIGITAL CAMERA I/F PROCESSING SECTION 3520
VIDEO CAPTURE SECTION 3510
TEXT INFORMATION INPUT SECTION (KEYBOARD OR INPUT DIAL 3530
DATA INPUT PC 3640
ANALOG INPUT TERMINAL 3570
VOICE INPUT MICROPHONE 3650
INTER-PC DATA I/F PROCESSING SECTION 3540
ADC 3350
MICROPHONE INPUT TERMINAL 3560
SWITCHING SECTION (DATA BUS LINE) FOR INPUT DATA TRANSFER DESTINATION 3210
AUDIO ENCODER (MPEG2 AAC COMPRESSION) 3310
DIGITAL INPUT TERMINAL 3580
MEMORY CARD 100
ENCRYPTION/DECRYPTION PROCESSING SECTION 3010
ENCRYPTION PROCESSING SECTION 3110
SYSTEM CONTROL SECTION (CPU/MPU; ROM; RAM) 3020
INFORMATION RECORDING AND REPRODUCING SECTION 3000
MANUAL AUTHENTICATION/ KEY EXCHANGE & ENCRYPTION INFORMATION I/F CONTROL SECTION 3120
ENCRYPTION KEY GENERATING/ STORAGE SECTION 3140
DECRYPTION PROCESSING SECTION 3130
AUDIO DECODER (DECOMPRESSING SECTION FOR COMPRESSED AUDIO INFORMATION; AAC EXPANSION PROCESSING 3320
COMMAND LINE
DATA LINE
SWITCHING SECTION (DATA/COMMAND BUS LINE) FOR OUTPUT DATA AND/OR CONTROL INFORMATION TRANSFER DESTINATION 3220
AUDIO BUFFER 3410
DAC 3360
EXTERNAL OUTPUT TERMINAL 3720 (TO HEAD PHONE OR SPEAKER
IMAGE DECODER (DECOMPRESSING SECTION FOR COMPRESSED STILL IMAGE INFORMATION; JPEG EXPANSION PROCESSING 3330
PAGE BUFFER 3430
VIDEO PROCESSING SECTION 3370
TEXT LINE BUFFER 3420
CHARACTER GENERATOR 3340
IMAGE DISPLAY SECTION 3710 (SUCH AS COLOR LIQUID CRYSTAL DISPLAY SECTION OR THE LIKE)

FIG. 7

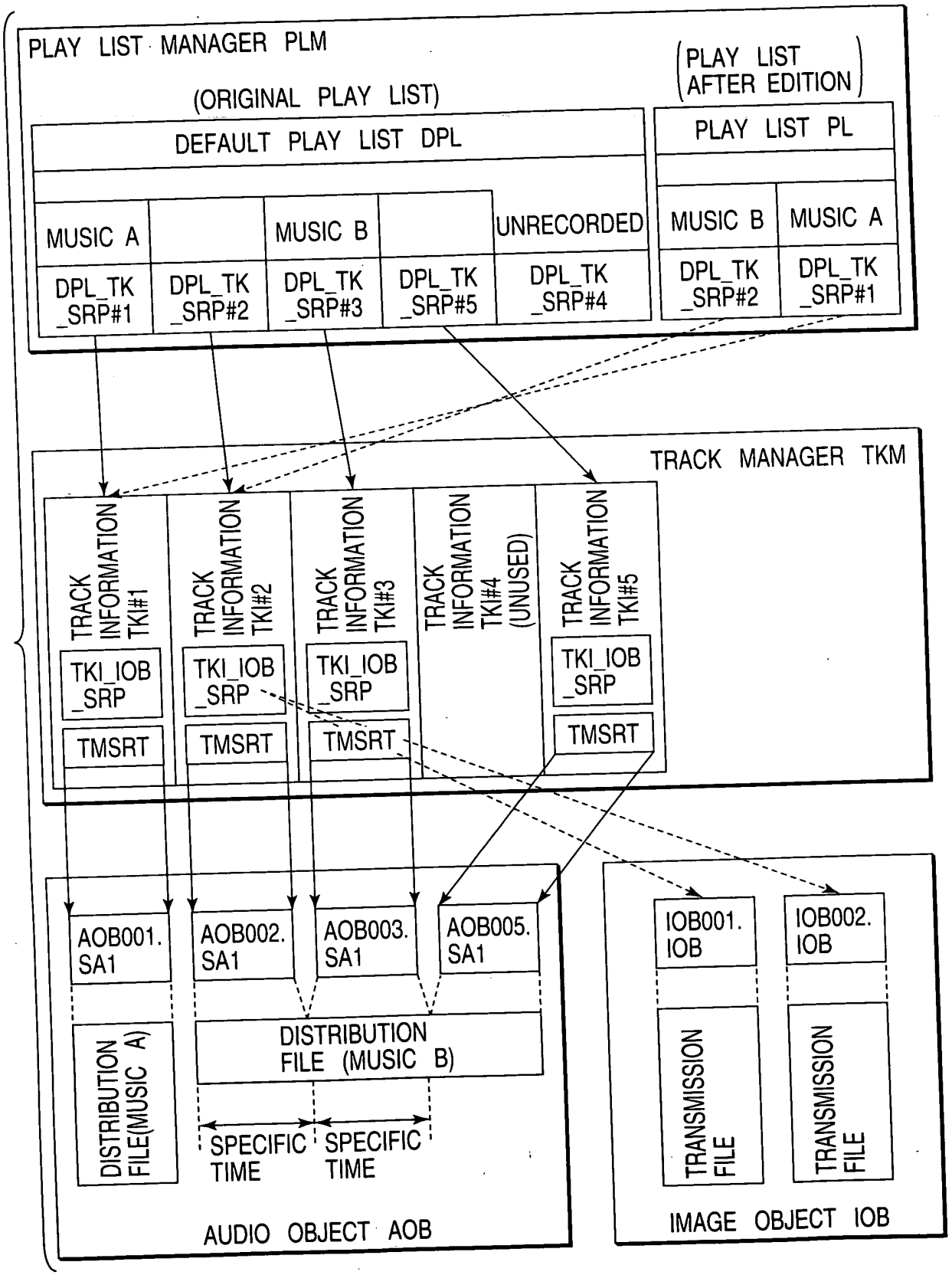
PLAY LIST MANAGER PLM
(ORIGINAL PLAY LIST)
DEFAULT PLAY LIST DPL
MUSIC A
MUSIC B
UNRECORDED
DPL_TK _SRP#1
DPL_TK _SRP#2
DPL_TK _SRP#3
DPL_TK _SRP#5
DPL_TK _SRP#4
(PLAY LIST AFTER EDITION)
PLAY LIST PL
MUSIC B
MUSIC A
DPL_TK _SRP#2
DPL_TK _SRP#1
TRACK MANAGER TKM
TRACK INFORMATION TKI#1
TRACK INFORMATION TKI#2
TRACK INFORMATION TKI#3
TRACK INFORMATION TKI#4 (UNUSED)
TRACK INFORMATION TKI#5
TKI_IOB _SRP
TMSRT
AOB001. SA1
AOB002. SA1
AOB003. SA1
AOB005. SA1
DISTRIBUTION FILE(MUSIC A)
DISTRIBUTION FILE (MUSIC B)
SPECIFIC TIME
SPECIFIC TIME
AUDIO OBJECT AOB
IOB001. IOB
IOB002. IOB
TRANSMISSION FILE
TRANSMISSION FILE
IMAGE OBJECT IOB

FIG. 8

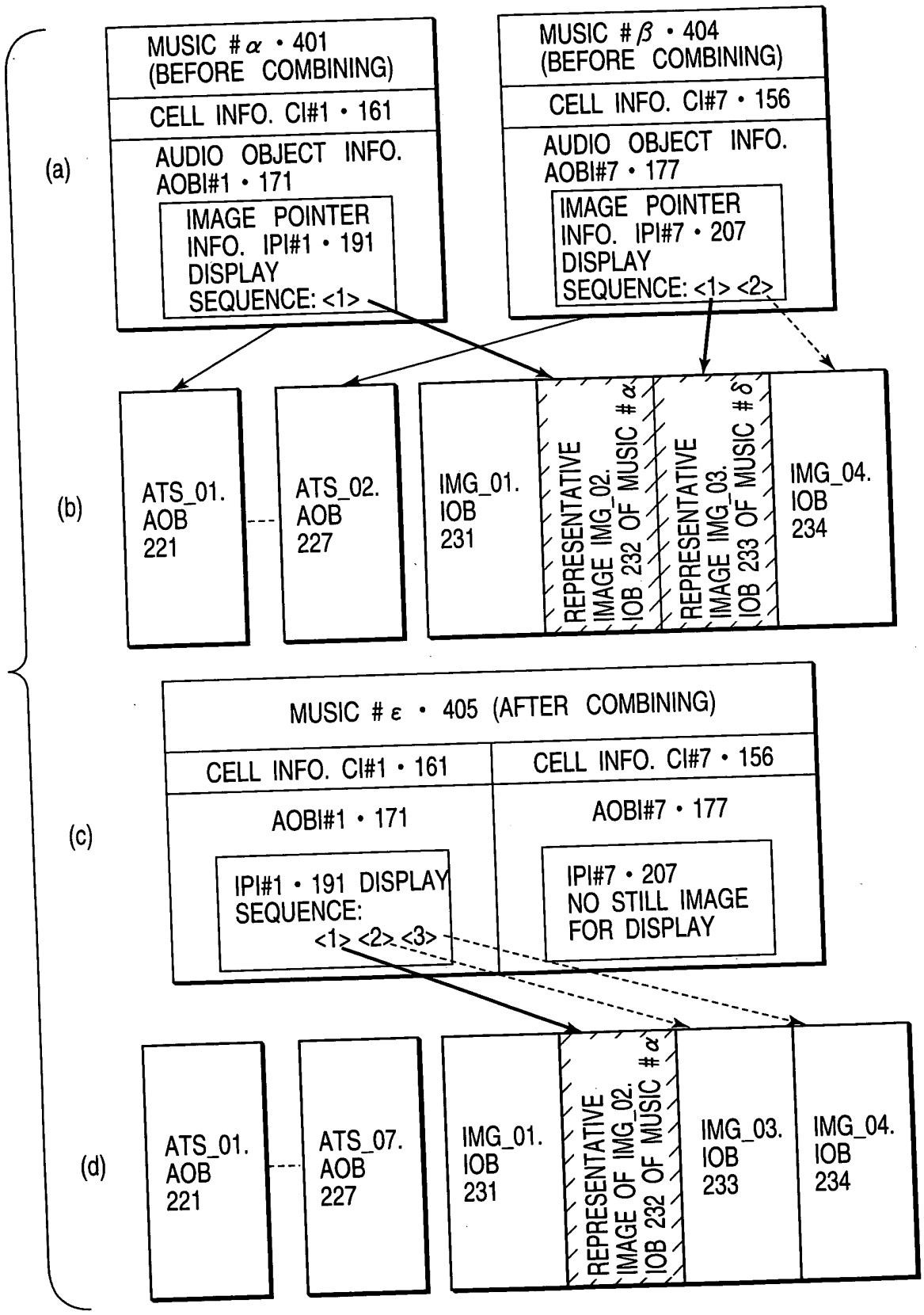
(a)
MUSIC # α • 401 (BEFORE COMBINING)
CELL INFO. CI#1 • 161
AUDIO OBJECT INFO. AOBI#1 • 171
IMAGE POINTER INFO. IPI#1 • 191 DISPLAY SEQUENCE: <1>
MUSIC # β • 404 (BEFORE COMBINING)
CELL INFO. CI#7 • 156
AUDIO OBJECT INFO. AOBI#7 • 177
IMAGE POINTER INFO. IPI#7 • 207 DISPLAY SEQUENCE: <1> <2>
(b)
ATS_01. AOB 221
ATS_02. AOB 227
IMG_01. IOB 231
REPRESENTATIVE IMAGE IMG_02. IOB 232 OF MUSIC # α
REPRESENTATIVE IMAGE IMG_03. IOB 233 OF MUSIC # δ
IMG_04. IOB 234
(c)
MUSIC # ε • 405 (AFTER COMBINING)
CELL INFO. CI#1 • 161
CELL INFO. CI#7 • 156
AOBI#1 • 171
AOBI#7 • 177
IPI#1 • 191 DISPLAY SEQUENCE: <1> <2> <3>
IPI#7 • 207 NO STILL IMAGE FOR DISPLAY
(d)
ATS_01. AOB 221
ATS_07. AOB 227
IMG_01. IOB 231
REPRESENTATIVE IMAGE OF IMG_02. IOB 232 OF MUSIC # α
IMG_03. IOB 233
IMG_04. IOB 234

FIG. 9

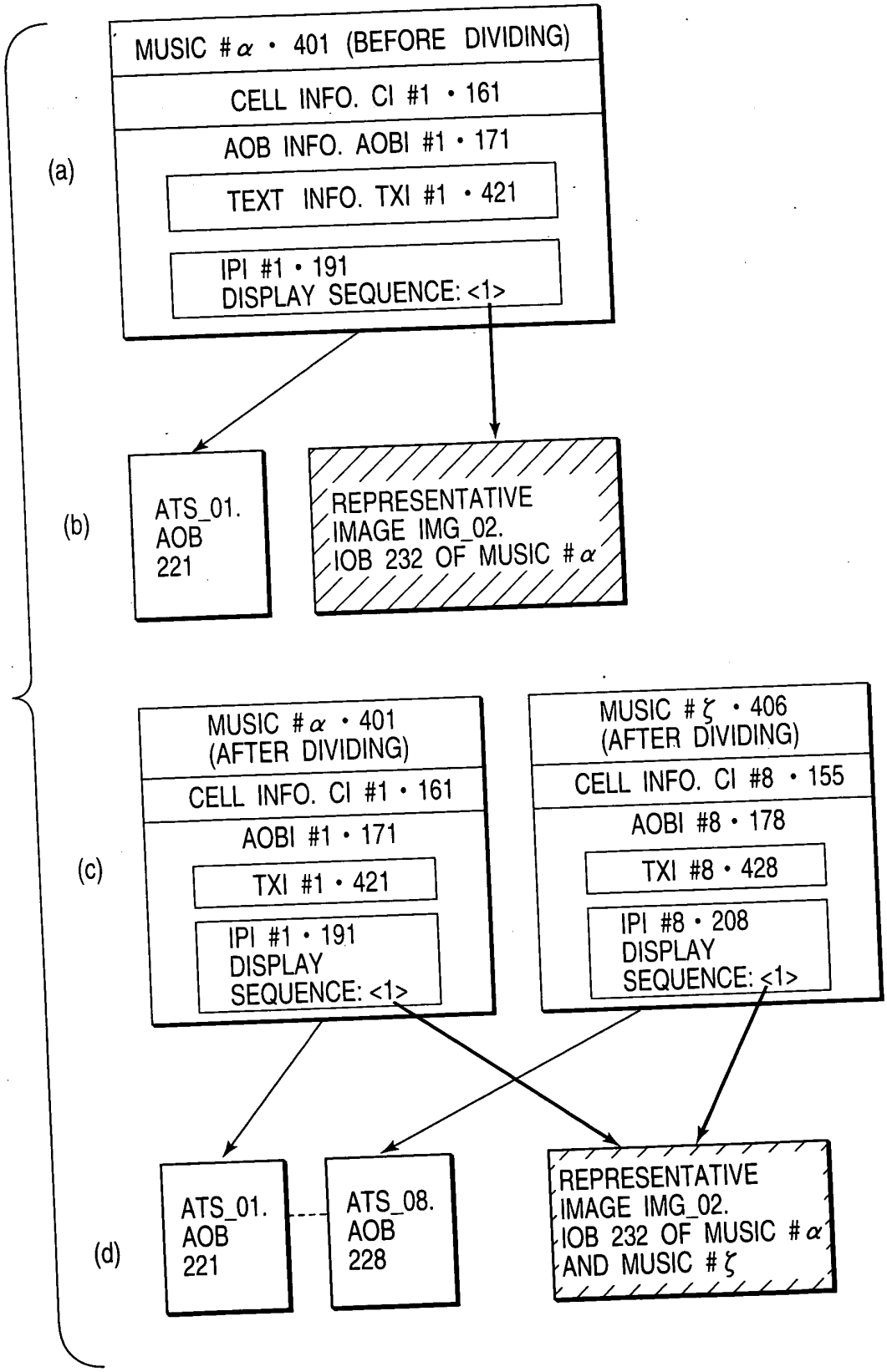
(a)
MUSIC # α • 401 (BEFORE DIVIDING)
CELL INFO. CI #1 • 161
AOB INFO. AOBI #1 • 171
TEXT INFO. TXI #1 • 421
IPI #1 • 191
DISPLAY SEQUENCE: <1>
(b)
ATS_01.
AOB
221
REPRESENTATIVE
IMAGE IMG_02.
IOB 232 OF MUSIC # α
(c)
MUSIC # α • 401
(AFTER DIVIDING)
CELL INFO. CI #1 • 161
AOBI #1 • 171
TXI #1 • 421
IPI #1 • 191
DISPLAY
SEQUENCE: <1>
MUSIC # ζ • 406
(AFTER DIVIDING)
CELL INFO. CI #8 • 155
AOBI #8 • 178
TXI #8 • 428
IPI #8 • 208
DISPLAY
SEQUENCE: <1>
(d)
ATS_01.
AOB
221
ATS_08.
AOB
228
REPRESENTATIVE
IMAGE IMG_02.
IOB 232 OF MUSIC # α
AND MUSIC # ζ

FIG. 10

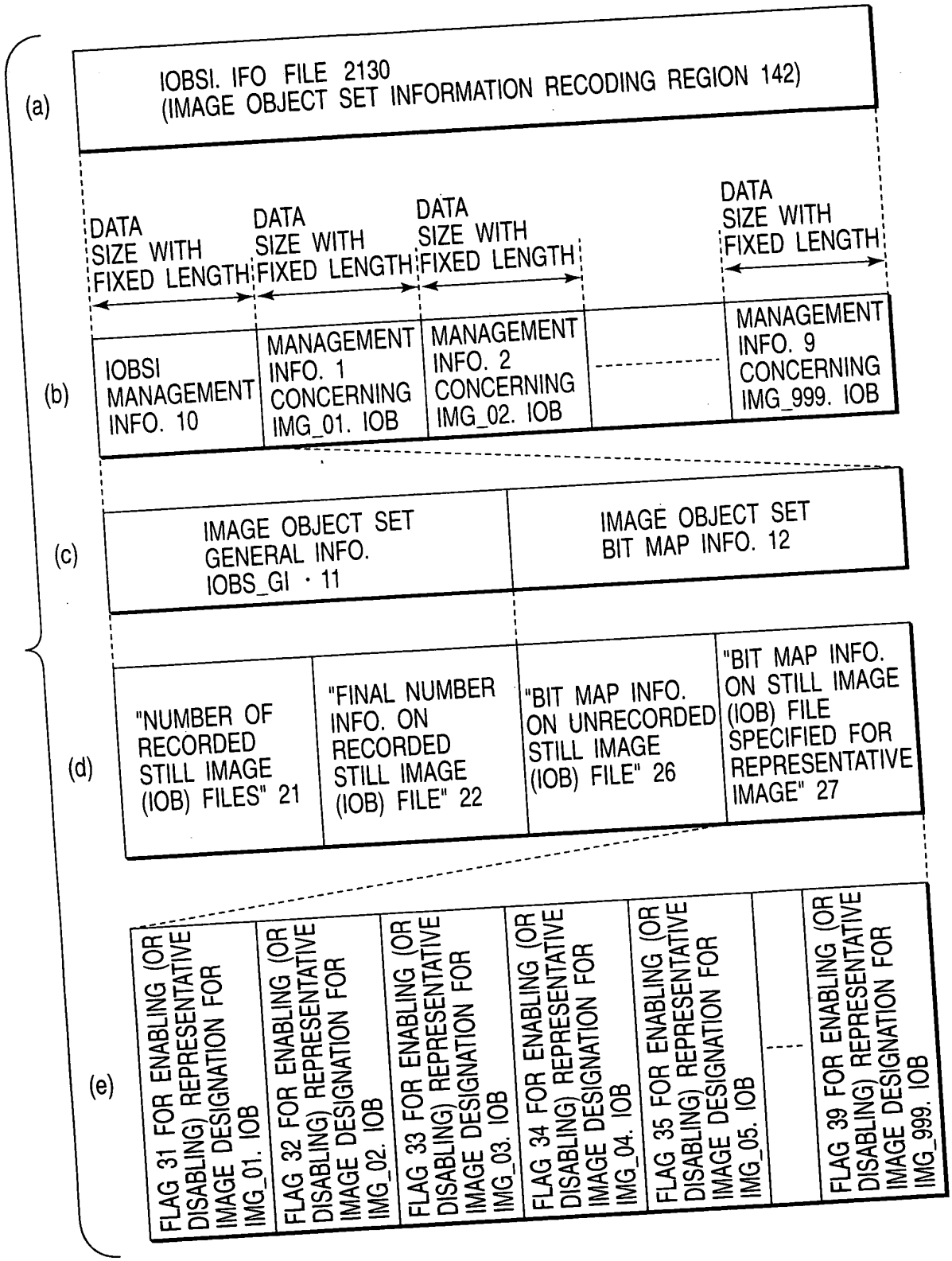
(a)
IOBSI. IFO FILE 2130
(IMAGE OBJECT SET INFORMATION RECODING REGION 142)
DATA SIZE WITH FIXED LENGTH
DATA SIZE WITH FIXED LENGTH
DATA SIZE WITH FIXED LENGTH
DATA SIZE WITH FIXED LENGTH
(b)
IOBSI MANAGEMENT INFO. 10
MANAGEMENT INFO. 1 CONCERNING IMG_01. IOB
MANAGEMENT INFO. 2 CONCERNING IMG_02. IOB
MANAGEMENT INFO. 9 CONCERNING IMG_999. IOB
(c)
IMAGE OBJECT SET GENERAL INFO. IOBS_GI · 11
IMAGE OBJECT SET BIT MAP INFO. 12
(d)
"NUMBER OF RECORDED STILL IMAGE (IOB) FILES" 21
"FINAL NUMBER INFO. ON RECORDED STILL IMAGE (IOB) FILE" 22
"BIT MAP INFO. ON UNRECORDED STILL IMAGE (IOB) FILE" 26
"BIT MAP INFO. ON STILL IMAGE (IOB) FILE SPECIFIED FOR REPRESENTATIVE IMAGE" 27
(e)
FLAG 31 FOR ENABLING (OR DISABLING) REPRESENTATIVE IMAGE DESIGNATION FOR IMG_01. IOB
FLAG 32 FOR ENABLING (OR DISABLING) REPRESENTATIVE IMAGE DESIGNATION FOR IMG_02. IOB
FLAG 33 FOR ENABLING (OR DISABLING) REPRESENTATIVE IMAGE DESIGNATION FOR IMG_03. IOB
FLAG 34 FOR ENABLING (OR DISABLING) REPRESENTATIVE IMAGE DESIGNATION FOR IMG_04. IOB
FLAG 35 FOR ENABLING (OR DISABLING) REPRESENTATIVE IMAGE DESIGNATION FOR IMG_05. IOB
FLAG 39 FOR ENABLING (OR DISABLING) REPRESENTATIVE IMAGE DESIGNATION FOR IMG_999. IOB

FIG. 11

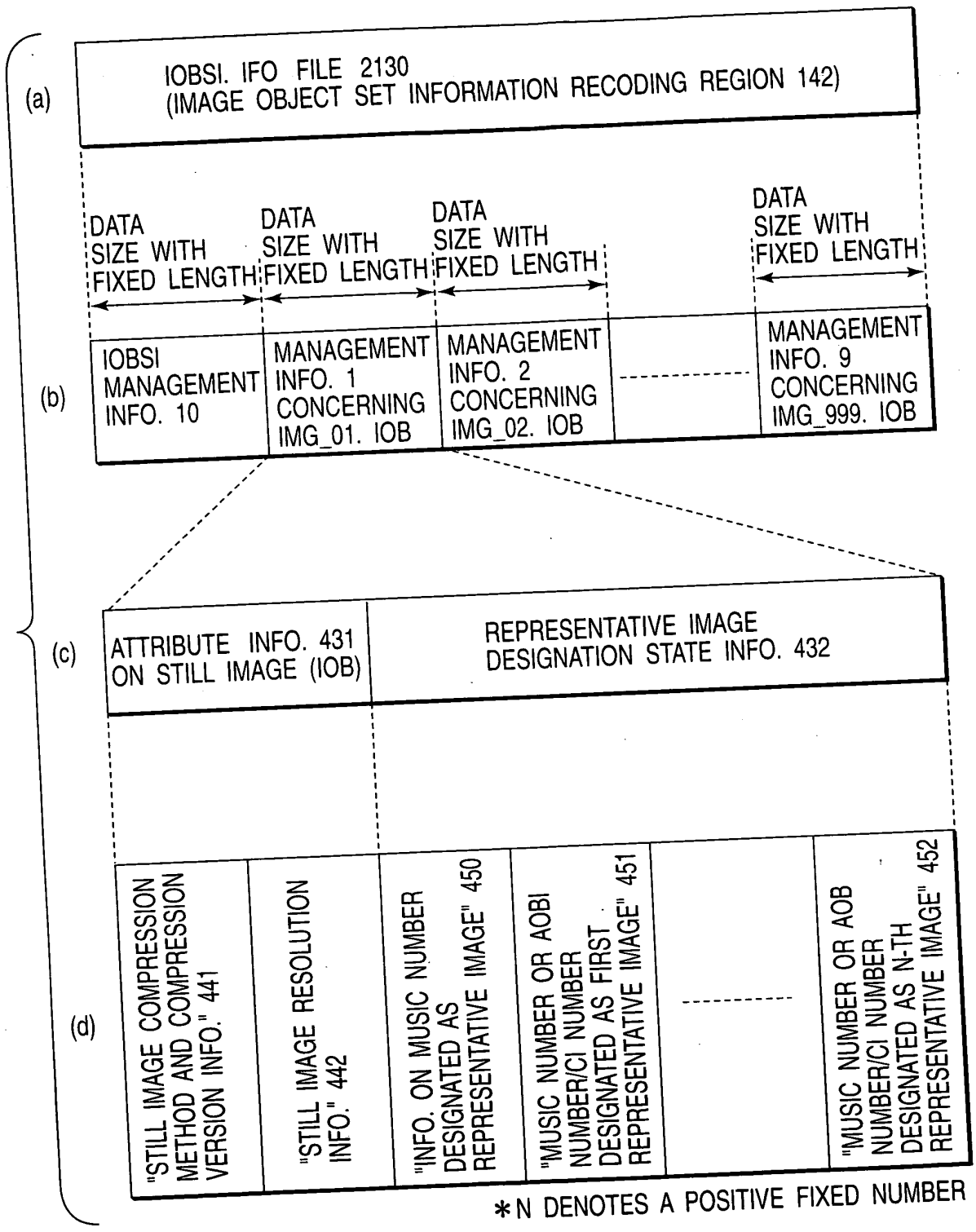
(a)
IOBSI. IFO FILE 2130
(IMAGE OBJECT SET INFORMATION RECODING REGION 142)
DATA SIZE WITH FIXED LENGTH
DATA SIZE WITH FIXED LENGTH
DATA SIZE WITH FIXED LENGTH
DATA SIZE WITH FIXED LENGTH
(b)
IOBSI MANAGEMENT INFO. 10
MANAGEMENT INFO. 1 CONCERNING IMG_01. IOB
MANAGEMENT INFO. 2 CONCERNING IMG_02. IOB
MANAGEMENT INFO. 9 CONCERNING IMG_999. IOB
(c)
ATTRIBUTE INFO. 431 ON STILL IMAGE (IOB)
REPRESENTATIVE IMAGE DESIGNATION STATE INFO. 432
(d)
"STILL IMAGE COMPRESSION METHOD AND COMPRESSION VERSION INFO." 441
"STILL IMAGE RESOLUTION INFO." 442
"INFO. ON MUSIC NUMBER DESIGNATED AS REPRESENTATIVE IMAGE" 450
"MUSIC NUMBER OR AOBI NUMBER/CI NUMBER DESIGNATED AS FIRST REPRESENTATIVE IMAGE" 451
"MUSIC NUMBER OR AOB NUMBER/CI NUMBER DESIGNATED AS N-TH REPRESENTATIVE IMAGE" 452
*N DENOTES A POSITIVE FIXED NUMBER

FIG. 12

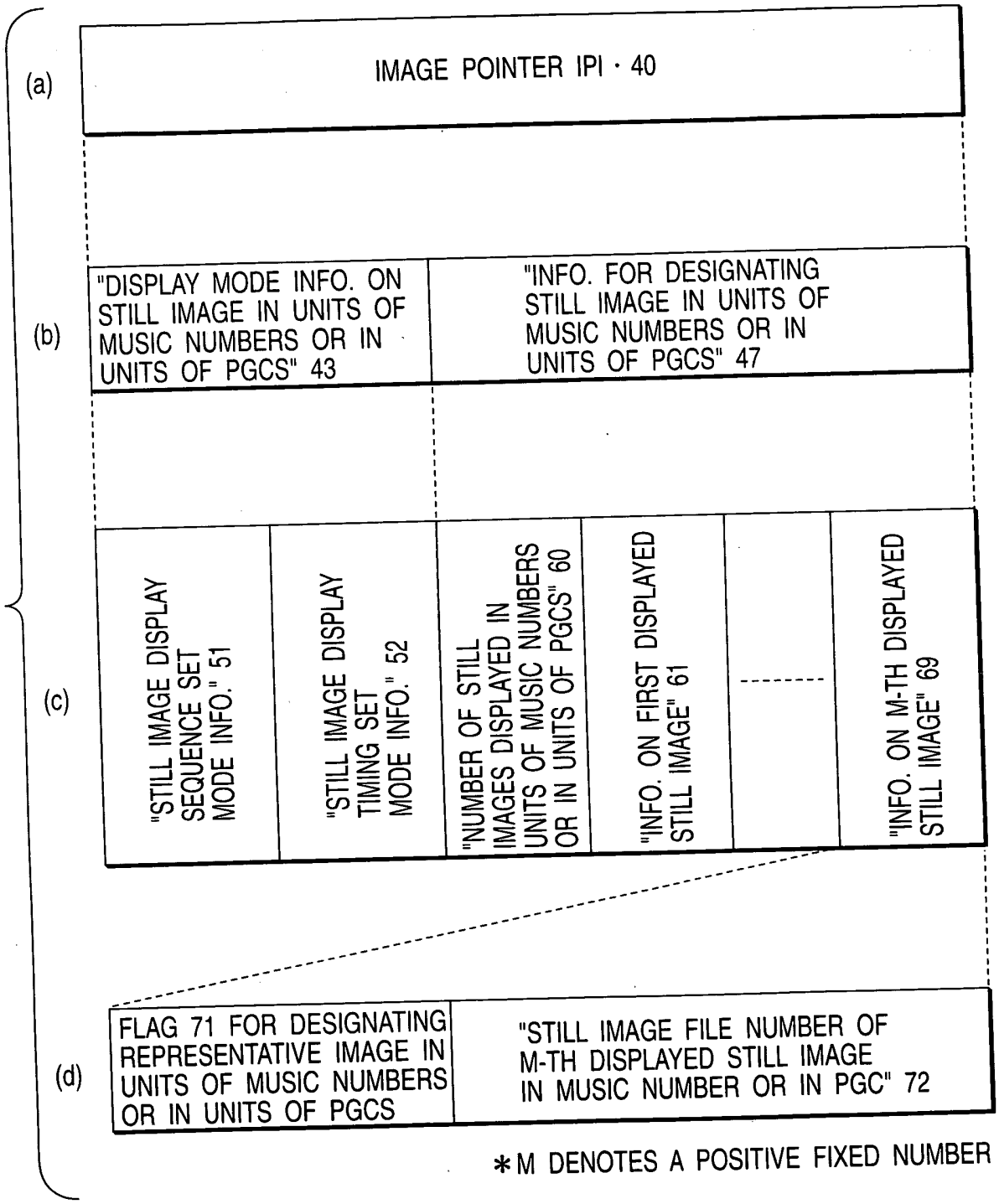
(a)
IMAGE POINTER IPI · 40
(b)
"DISPLAY MODE INFO. ON STILL IMAGE IN UNITS OF MUSIC NUMBERS OR IN UNITS OF PGCS" 43
"INFO. FOR DESIGNATING STILL IMAGE IN UNITS OF MUSIC NUMBERS OR IN UNITS OF PGCS" 47
(c)
"STILL IMAGE DISPLAY SEQUENCE SET MODE INFO." 51
"STILL IMAGE DISPLAY TIMING SET MODE INFO." 52
"NUMBER OF STILL IMAGES DISPLAYED IN UNITS OF MUSIC NUMBERS OR IN UNITS OF PGCS" 60
"INFO. ON FIRST DISPLAYED STILL IMAGE" 61
"INFO. ON M-TH DISPLAYED STILL IMAGE" 69
(d)
FLAG 71 FOR DESIGNATING REPRESENTATIVE IMAGE IN UNITS OF MUSIC NUMBERS OR IN UNITS OF PGCS
"STILL IMAGE FILE NUMBER OF M-TH DISPLAYED STILL IMAGE IN MUSIC NUMBER OR IN PGC" 72
*M DENOTES A POSITIVE FIXED NUMBER

FIG. 13

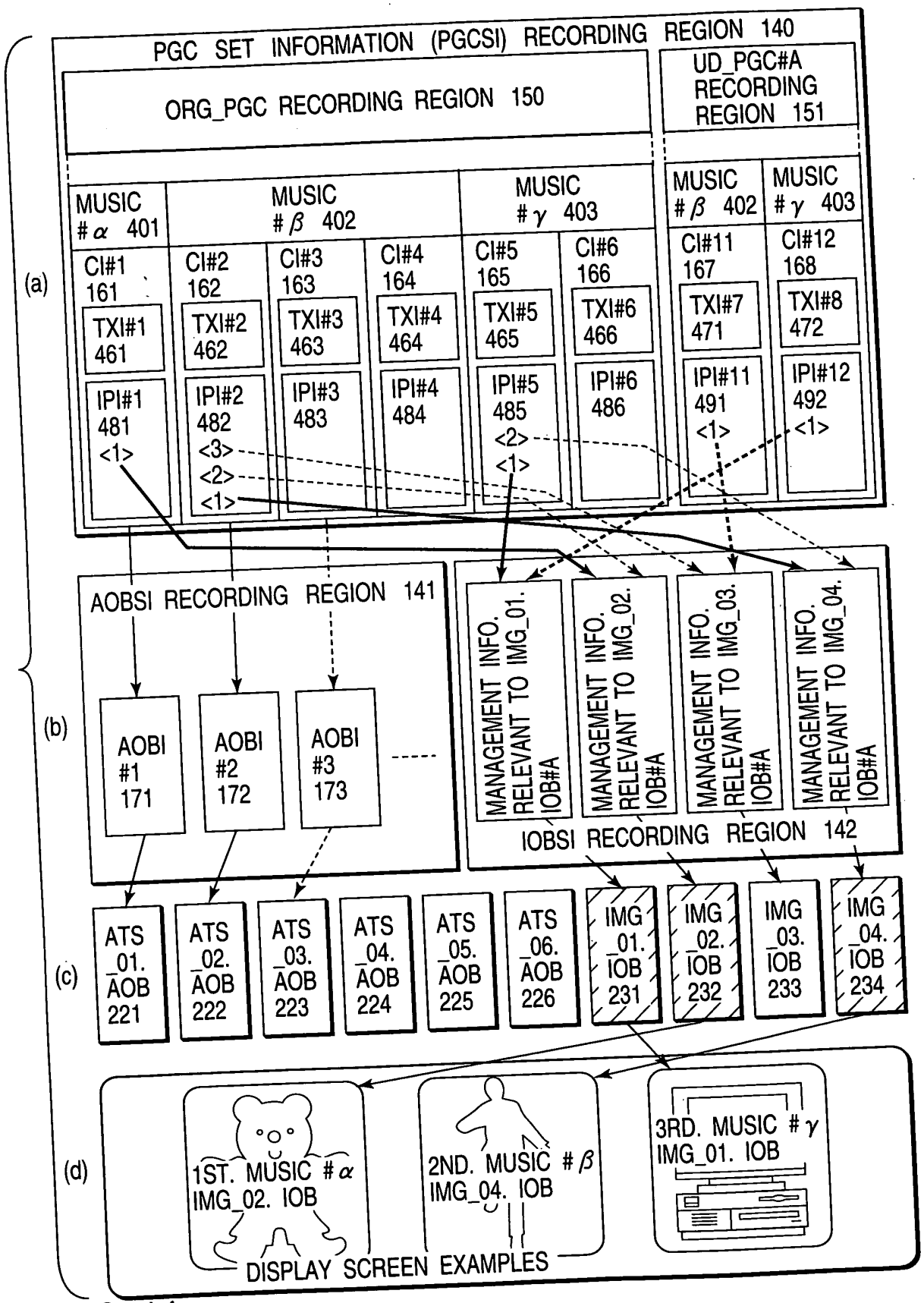
PGC SET INFORMATION (PGCSI) RECORDING REGION 140
ORG_PGC RECORDING REGION 150
UD_PGC#A RECORDING REGION 151
MUSIC #α 401
MUSIC #β 402
MUSIC #γ 403
MUSIC #β 402
MUSIC #γ 403
CI#1 161
CI#2 162
CI#3 163
CI#4 164
CI#5 165
CI#6 166
CI#11 167
CI#12 168
TXI#1 461
TXI#2 462
TXI#3 463
TXI#4 464
TXI#5 465
TXI#6 466
TXI#7 471
TXI#8 472
IPI#1 481 <1>
IPI#2 482 <3> <2> <1>
IPI#3 483
IPI#4 484
IPI#5 485 <2> <1>
IPI#6 486
IPI#11 491 <1>
IPI#12 492 <1>
(a)
AOBSI RECORDING REGION 141
AOBI #1 171
AOBI #2 172
AOBI #3 173
MANAGEMENT INFO. RELEVANT TO IMG_01. IOB#A
MANAGEMENT INFO. RELEVANT TO IMG_02. IOB#A
MANAGEMENT INFO. RELEVANT TO IMG_03. IOB#A
MANAGEMENT INFO. RELEVANT TO IMG_04. IOB#A
IOBSI RECORDING REGION 142
(b)
ATS_01. AOB 221
ATS_02. AOB 222
ATS_03. AOB 223
ATS_04. AOB 224
ATS_05. AOB 225
ATS_06. AOB 226
IMG_01. IOB 231
IMG_02. IOB 232
IMG_03. IOB 233
IMG_04. IOB 234
(c)
1ST. MUSIC #α IMG_02. IOB
2ND. MUSIC #β IMG_04. IOB
3RD. MUSIC #γ IMG_01. IOB
DISPLAY SCREEN EXAMPLES
(d)

FIG. 14

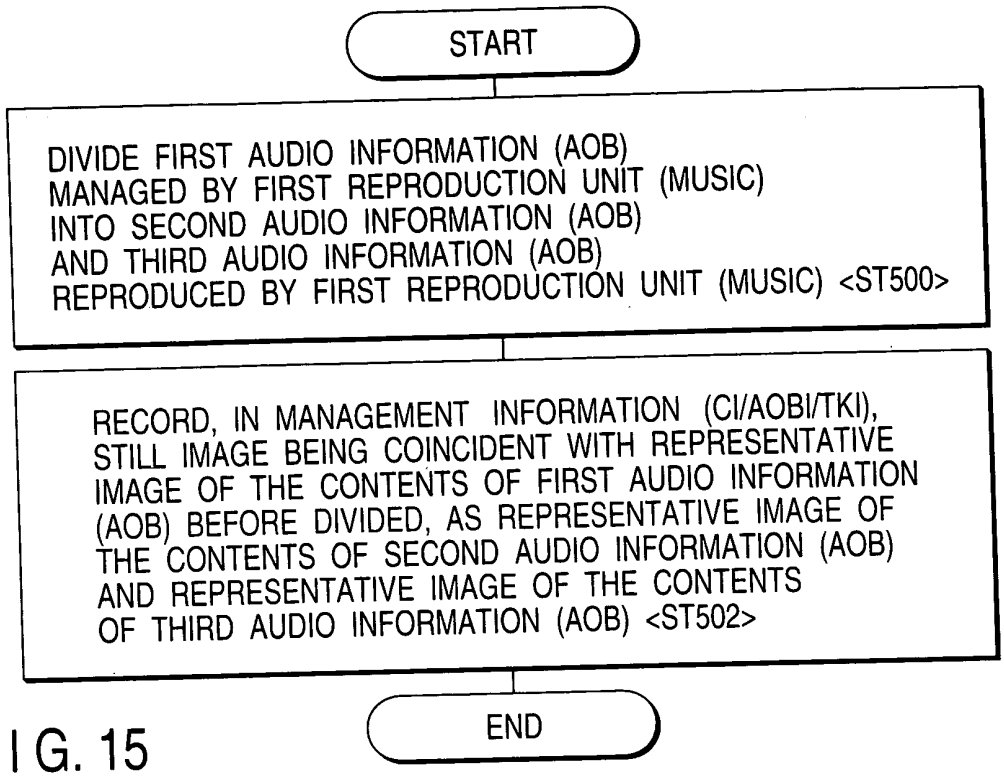
START
DIVIDE FIRST AUDIO INFORMATION (AOB) MANAGED BY FIRST REPRODUCTION UNIT (MUSIC) INTO SECOND AUDIO INFORMATION (AOB) AND THIRD AUDIO INFORMATION (AOB) REPRODUCED BY FIRST REPRODUCTION UNIT (MUSIC) <ST500>
RECORD, IN MANAGEMENT INFORMATION (CI/AOBI/TKI), STILL IMAGE BEING COINCIDENT WITH REPRESENTATIVE IMAGE OF THE CONTENTS OF FIRST AUDIO INFORMATION (AOB) BEFORE DIVIDED, AS REPRESENTATIVE IMAGE OF THE CONTENTS OF SECOND AUDIO INFORMATION (AOB) AND REPRESENTATIVE IMAGE OF THE CONTENTS OF THIRD AUDIO INFORMATION (AOB) <ST502>
END

FIG. 15

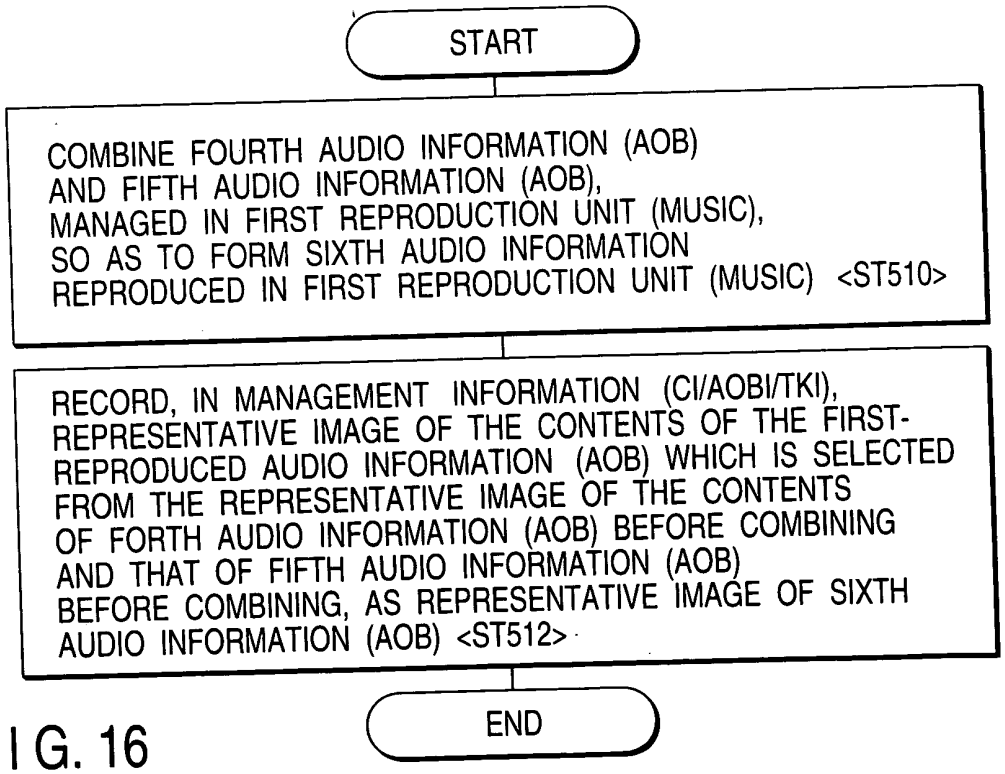
START
COMBINE FOURTH AUDIO INFORMATION (AOB) AND FIFTH AUDIO INFORMATION (AOB), MANAGED IN FIRST REPRODUCTION UNIT (MUSIC), SO AS TO FORM SIXTH AUDIO INFORMATION REPRODUCED IN FIRST REPRODUCTION UNIT (MUSIC) <ST510>
RECORD, IN MANAGEMENT INFORMATION (CI/AOBI/TKI), REPRESENTATIVE IMAGE OF THE CONTENTS OF THE FIRST-REPRODUCED AUDIO INFORMATION (AOB) WHICH IS SELECTED FROM THE REPRESENTATIVE IMAGE OF THE CONTENTS OF FORTH AUDIO INFORMATION (AOB) BEFORE COMBINING AND THAT OF FIFTH AUDIO INFORMATION (AOB) BEFORE COMBINING, AS REPRESENTATIVE IMAGE OF SIXTH AUDIO INFORMATION (AOB) <ST512>
END

FIG. 16

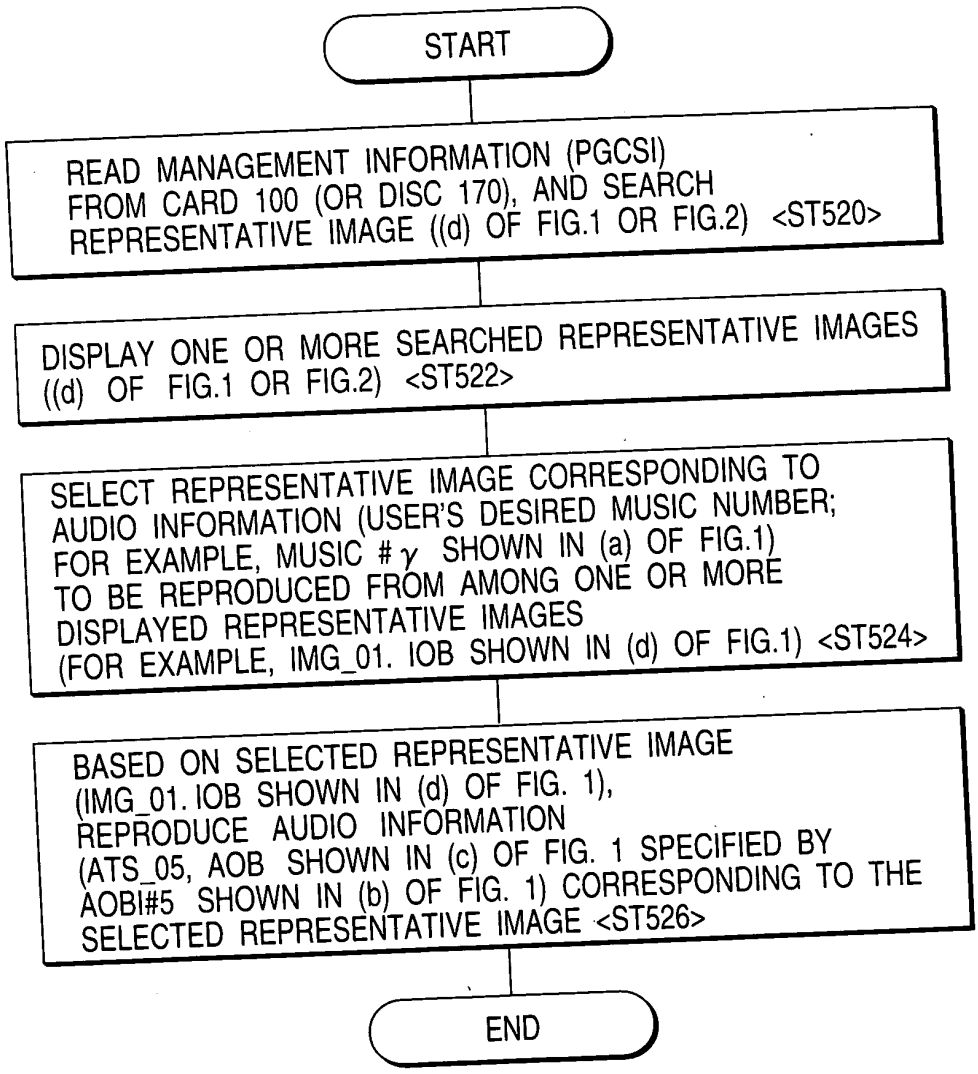
START
READ MANAGEMENT INFORMATION (PGCSI) FROM CARD 100 (OR DISC 170), AND SEARCH REPRESENTATIVE IMAGE ((d) OF FIG.1 OR FIG.2) <ST520>
DISPLAY ONE OR MORE SEARCHED REPRESENTATIVE IMAGES ((d) OF FIG.1 OR FIG.2) <ST522>
SELECT REPRESENTATIVE IMAGE CORRESPONDING TO AUDIO INFORMATION (USER'S DESIRED MUSIC NUMBER; FOR EXAMPLE, MUSIC # γ SHOWN IN (a) OF FIG.1) TO BE REPRODUCED FROM AMONG ONE OR MORE DISPLAYED REPRESENTATIVE IMAGES (FOR EXAMPLE, IMG_01. IOB SHOWN IN (d) OF FIG.1) <ST524>
BASED ON SELECTED REPRESENTATIVE IMAGE (IMG_01. IOB SHOWN IN (d) OF FIG. 1), REPRODUCE AUDIO INFORMATION (ATS_05, AOB SHOWN IN (c) OF FIG. 1 SPECIFIED BY AOBI#5 SHOWN IN (b) OF FIG. 1) CORRESPONDING TO THE SELECTED REPRESENTATIVE IMAGE <ST526>
END

FIG. 17